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PROGNOSTIC DISCUSSION FOR LONG-LEAD OUTLOOKS
CLIMATE PREDICTION CENTER NCEP
NATIONAL WEATHER SERVICE WASHINGTON DC
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. . BASIS AND SUMMARY OF THE CURRENT LONG-LEAD OUTLOOK

THESE OUTLOOKS REFLECT THE EXPECTED U.S. CLIMATE ANOMALIES FOR ENSO-NEUTRAL TO BORDERLINE COLD-ENSO CONDITIONS FOR DJF - AND ENSO NEUTRAL CONDITIONS FROM JFM TO EARLY SUMMER. MOREOVER WE ASSUME A NEAR-NEUTRAL SEASONAL PHASE OF THE NORTH ATLANTIC OSCILLATION (NAO). THE NAO AND MANY OTHER MODES OF ATMOSPHERIC INTERNAL VARIABILITY HAVE LOW PREDICTABILITY.

ESTIMATES OF DECADAL TRENDS PLUS ENSO-NEUTRAL AND COLD COMPOSITES THUS PROVIDE THE BASIS FOR THE SEASONAL OUTLOOKS FOR THE UPCOMING WINTER. ON AVERAGE - THIS WINTER WILL LIKELY BE COOLER THAN THE LAST THREE - WHICH WERE EXCEPTIONALLY WARM. NONETHELESS - WE STILL EXPECT GENERALLY WARMER THAN NORMAL TEMPERATURES FOR THE SOUTHERN HALF OF THE U.S. - COMPARED TO THE 1961-1990 CLIMATOLOGY THAT IS - A NORMAL WHICH WE WILL CONTINUE TO USE TO COMPUTE ANOMALIES FROM UNTIL EARLY NEXT SPRING WHEN THE 1971-2000 NORMALS WILL BECOME THE OFFICIAL STANDARD. CONFLICTING FORECAST TOOLS INDICATE THAT CLIMATOLOGICAL ODDS SHOULD BE USED IN MOST OF THE NORTHERN HALF OF THE U.S FROM DJF TO FMA. TEMPERATURE AND PRECIPITATION VARIABILITY WILL LIKELY BE ENHANCED - WHICH IN VIEW OF THE CL FORECAST INDICATES AN INCREASED LIKELIHOOD OF SIGNIFICANT WINTER WEATHER EXTREMES - INCLUDING COLD AIR OUTBREAKS EXTENDING INTO THE DEEP SOUTH - SNOWY DAYS IN THE GREAT LAKES AND NORTHEAST - AND DAYS BELOW 0 DEGREES F IN THE NORTHERN PLAINS AND MIDWEST.

STATISTICAL PREDICTIONS OF NINO3.4 INDICATE THE POSSIBILITY OF A WARM EVENT BY WINTER 2001/2002 WITH ENOUGH CONFIDENCE TO PLAY A ROLE IN THE TWO LONGEST LEADS.

. . CURRENT ATMOSPHERIC AND OCEANIC CONDITIONS

NEAR-NORMAL TO SLIGHTLY COLD ATMOSPHERIC AND OCEANIC CONDITIONS PREVAILED IN THE TROPICAL PACIFIC DURING OCTOBER. WEAK NEGATIVE SST ANOMALIES THAT WERE FOUND ACROSS PORTIONS OF THE CENTRAL AND EASTERN TROPICAL PACIFIC DURING SEPTEMBER HAVE STRENGTHENED SOMEWHAT. OCTOBER FEATURED SOMEWHAT STRONGER THAN NORMAL TRADE WINDS AND CONVECTION REMAINED DEPRESSED NEAR THE DATELINE. THE OCEANIC THERMOCLINE IS DEEPER-THAN-NORMAL IN THE EQUATORIAL WEST-CENTRAL AND WESTERN PACIFIC - WITH TEMPERATURES AVERAGING UP TO 3 DEGREES CELSIUS ABOVE NORMAL AT THERMOCLINE DEPTH. THE NEGATIVE TEMPERATURE ANOMALIES THAT HAVE CHARACTERIZED THE SUBSURFACE THERMAL STRUCTURE IN THE EASTERN PACIFIC SINCE LATE 1998 - WHILE WEAKER THAN IN OCTOBER 1999 - HAVE REASSERTED THEMSELVES SOMEWHAT. DURING SUMMER AND FALL THE PATTERN OF TROPICAL CONVECTION FEATURED INTRASEASONAL ACTIVITY OVER THE EASTERN INDIAN OCEAN - INDONESIA - AND THE WESTERN TROPICAL PACIFIC - BUT ALSO REMAINED GENERALLY CONSISTENT WITH WEAK COLD EPISODE CONDITIONS IN THAT THE SUPPRESSED CONVECTION NEAR THE DATELINE WAS BROKEN THRUOGH ONLY ONCE - IN AUGUST.

. . PROGNOSTIC DISCUSSION OF SST FORECASTS

WITH THE INITIAL CONDITIONS SOMEWHAT COLDER THAN A MONTH AGO - THE NCEP STATISTICAL MODELS (CONSTRUCTED ANALOG (CA) METHOD AND CANONICAL CORRELATION ANALYSIS (CCA)) CONTINUE TO PREDICT BELOW NORMAL SSTS. THE NCEP COUPLED MODEL HOLDS TEMPERATURES CLOSER TO NEAR-NORMAL THROUGH THE END OF THE YEAR. THE MAGNITUDE OF THE FORECAST NEGATIVE SST ANOMALIES IN CCA AND CA IS ON THE ORDER OF AT MOST 0.5-0.7 DEGREE C FOR NINO 3.4 WHICH IS ENOUGH TO SUGGEST LA NINA CONDITIONS MAY PLAY A

SLIGHT ROLE IN DJF. THIS IS A SLIGHT CHANGE IN THINKING FROM A MONTH AGO WHEN THE COLD EVENT WAS CONSIDERED MORE DEFINITIVELY OVER.

REMARKABLY - ALL MODELS ARE IN PERFECT AGREEMENT IN FORECASTING A CROSS-OVER TO POSITIVE SST ANOMALIES IN MARCH 2001. IN FACT ALL TOOLS HAVE BEEN INDICATING THIS CROSS-OVER IN MARCH 2001 FOR THE LAST 5 MONTHS. THE QUESTION IS HOW RAPID WILL THE WARMING BE THEREAFTER. FROM A CLOSE INSPECTION OF THE TOOLS OVER THE LAST SEVERAL MONTHS IT APPEARS THAT THE FORECAST WARMING IN DJF 2001/2002 INCREASES WITH THE MAGNITUDE OF THE COLD ANOMALIES BEFORE THE CROSS OVER IN MARCH 2001. CURRENT INCREASES IN THE COLD CONDITION THUS SET UP A SCENARIO FOR AN INCREASED LIKELIHOOD OF A WARM EVENT IN 2001/2002 - A CONSIDERATION WE FACTORED INTO THE NDJ AND DJF 2001/2002 U.S. FORECASTS.

THE OFFICIAL SST FORECAST - WHICH IS A CONSOLIDATION OF THE 3 MODELS BASED ON PAST PERFORMANCE AND CO-LINEARITY - INDICATES BELOW NORMAL NINO3.4 AT EARLY LEADS BUT COMES INTO AGREEMENT WITH ALL TOOLS ON FORECASTING A RELATIVELY QUICK TRANSITION IN MARCH 2001 AND A GOOD LIKELIHOOD FOR AN - AT LEAST MILD - WARM EVENT FOR WINTER 2001/2002. FORECASTS THIS FAR OUT ARE OBVIOUSLY UNCERTAIN. USERS ARE ADVISED TO MONITOR THE MONTHLY UPDATES OF THESE FORECASTS AS WE GET CLOSER TO NEXT WINTER.

PROGNOSTIC TOOLS USED FOR U.S. TEMPERATURE AND PRECIPITATION OUTLOOK

IN GENERAL FEW CHANGES WERE MADE FORM LAST MONTH'S SET. THE CCA AND SMLR FORECASTS WERE CONSULTED AT ALL LEAD TIMES AND THE CMP FORECASTS WERE USED FOR DJF THROUGH MAM. THE PRIMARY TOOL FOR THIS SET OF FORECASTS IS THE TREND - AS RENDERED BY THE OCN TOOL RELATIVE TO THE 1961-1990 CLIMATOLOGY. SEVERAL ADDITIONAL ESTIMATES OF THE TREND WERE CONSTRUCTED FOR THE FORECASTS MADE ONE MONTH AGO - INCLUDING A VERSION OF OCN FOR ENSO-NEUTRAL CONDITIONS - AND A RESIDUAL TREND THAT ACCOUNTS FOR THE CONTRIBUTIONS OF THE LEADING MODES OF NATURAL VARIABILITY. A SET OF COMPOSITES OF PRECIPITATION AND TEMPERATURE ANOMALIES FOR ENSO-NEUTRAL YEARS - IN WHICH A 9-YEAR RUNNING MEAN WAS FIRST REMOVED FROM THE COMPLETE TIMESERIES - WAS ALSO CONSULTED. ENSO COLD COMPOSITES WERE USED FOR DJF 2000/2001 AND ENSO WARM COMPOSITES WERE USED FOR DJF 2001/2002. SMALLER MODIFICATIONS ARE MENTIONED BELOW WHERE RELEVANT.

PROGNOSTIC DISCUSSION OF OUTLOOKS - DJF 2000/2001 TO DJF 2001/2002

THE TEMPERATURE FORECAST FOR DJF 2000 CALLS FOR WARMER-THAN-NORMAL TEMPERATURES IN THE SOUTHERN ONE THIRD OF THE NATION - PARTICULARLY IN THE DESERT SOUTHWEST AND THE WESTERN GULF STATES. COMPARED TO A MONTH AGO WE REDUCED WARMTH ALONG THE WEST COAST BECAUSE OF COLD LOCAL SST - AND WE REDUCED WARMTH IN THE ROCKIES BECAUSE OF EARLY SNOW COVER WHICH MAY HELP TO KEEP THE BOUNDARY LAYER COLD EVEN IF THE MID-TROPOSHERIC CIRCULATION TURNS MILDER.
WETTER-THAN-NORMAL CONDITIONS IN THE SOUTHERN PLAINS AND ALONG PORTIONS OF THE WESTERN GULF COAST ARE LIKEWISE SUPPORTED BY TREND ESTIMATES FOR ENSO-NEUTRAL CONDITIONS. BECAUSE OF WEAK LA NINA CONDITIONS WE OPTED FOR BELOW MEDIAN PRECIPITATION IN SOUTHERN ARIZONA AND FLORIDA. ADDING THESE TWO BELOW MEDIAN PRECIPITATION AREAS IS A CHANGE FROM LAST MONTH.

THE FORECASTS FOR JFM 2001 THROUGH MAM 2001 REFLECT THE LONG TERM TRENDS TEMPERED BY COMPOSITES FOR ENSO-NEUTRAL CONDITIONS (IN WHICH THE TREND HAS BEEN REMOVED). ABOVE NORMAL TEMPERATURES ARE EXPECTED OVER THE SOUTHERN HALF OF THE LOWER 48 STATES. PROBABILITIES FOR ABOVE NORMAL TEMPERATURES ARE HIGHEST IN THE SOUTH AND SOUTHWEST WHERE YEAR-TO-YEAR VARIABILITY IS SMALL IN RELATION TO THE TRENDS. THE BATTLE GROUND IS THE

NORTHEAST. BASED ON THE CMF AND NEUTRAL ENSO COMPOSITES BELOW NORMAL TEMPS ARE LIKELY - BUT THIS TENDENCY IS OFFSET BY STRONG RECENT TRENDS FOR WARM WINTERS. AFTER CONSIDERABLE DISCUSSION WE BELIEVE THAT ON BALANCE CLIMATOLOGICAL ODDS APPLY OVER THE NORTHERN HALF OF THE COUNTRY - MOST NOTABLY IN THE REGION FROM THE NORTHERN PLAINS TO THE NORTHEAST. CURRENTLY THERE IS NO CAPABILITY TO FORECAST THE SEASONAL PHASE OF THE NAO - WHICH INTRODUCES LARGE UNCERTAINTY IN THE FORECASTS ALONG THE EASTERN SEABOARD. THE TREND TOOLS INDICATE ABOVE MEDIAN PRECIPITATION EXTENDING FROM THE WESTERN GULF COAST STATES TO THE CENTRAL APPALACHIANS AND DRYNESS LINGERING OVER FLORIDA THRU JFM. OVER SOUTHERN ALASKA TEMPERATURES ARE EXPECTED TO REMAIN COLD UNTIL FMA 2001 DUE TO CCA AFTER WHICH THE TREND TOOLS TAKE OVER AND INDICATE THAT TEMPERATURES WILL BE ABOVE NORMAL. CLIMATOLOGICAL PROBABILITIES FOR PRECIPITATION IN ALASKA ARE FORECAST FOR ALL SEASONS.

THE FORECASTS FOR AMJ THROUGH JJA 2001 MOSTLY REFLECT TEMPERATURE AND PRECIPITATION TRENDS. THE WINTER WARMING TREND CONTINUES INTO SPRING IN THE WESTERN U.S. - BUT FORECAST PROBABILITIES FOR ABOVE NORMAL TEMPERATURES IN THE SOUTHEAST U.S. DIMINISH RAPIDLY FROM WINTER TO SPRING ONLY TO REAPPEAR IN SUMMER. PRECIPITATION TRENDS ARE TOWARD WETTER SPRINGTIME CONDITIONS IN THE PACIFIC NORTHWEST - AND THIS IS SUPPORTED BY CCA. OCN INDICATES STRONG WARMING TRENDS IN ALASKA IN THE SPRING AND EARLY SUMMER WITH THE CCA SUPPORTING THIS BY EARLY SUMMER FOR THE INTERIOR AREAS.

THE FORECAST FOR JAS 2001 TROUGH DJF 2001/2002 SHOWS WARMING TRENDS FOR MUCH OF THE WEST - AND IN PORTIONS OF THE SOUTHERN STATES - DIMINISHING FROM JAS TO OND. TRENDS INCREASE THE LIKELIHOOD OF SUB-NORMAL TEMPERATURES IN THE CENTER OF THE NATION DURING JAS AND ASO. CCA INDICATES BELOW MEDIAN PRECIPITATION IN JAS AND ASO FOR PORTIONS OF THE PACIFIC NORTHWEST AND THE GREAT BASIN - WITH SOME SUPPORT FROM OCN.

FOR NDJ AND ESPECIALLY DJF2001/2002 WE STRETCHED THE TREND TOOLS TO LOOK SOMEWHAT LIKE A WARM EVENT COMPOSITE. MOST NOTABLY WE EXTENDED THE ABOVE MEDIAN PRECIP FROM TEXAS BACK INTO CALIFORNIA AND EASTWARD AS WELL INTO THE GULF STATES. DURING WARM ENSO THE TRENDS FOR WARM WEATHER IN THE NORTHEAST WOULD COME OUT UNABATED AND MAY EXTEND WESTWARD INTO THE UPPER MIDWEST AND NORTHWEST. ON THE OTHER HAND THE SOUTHEAST MAY NOT BE AS WARM AS INDICATED BY TREND ALONE. PROBABILTY ANOMALIES ARE MODEST IN ALL CASES AT A LEAD OF 12.5 MONTHS.

FOR A DESCRIPTION OF THE STANDARD FORECAST TOOLS - THEIR SKILL - AND THE FORECAST FORMAT PLEASE SEE OUR WEB PAGE AT:
HTTP://WWW.CPC.NCEP.NOAA.GOV/PRODUCTS/PREDICTIONS/MULTI-SEASON/13_SEASONAL_OUTLOOKS/TOOLS

NOTE - THESE CLIMATE OUTLOOKS ARE INTENDED FOR USE PRIOR TO THE START OF THEIR VALID PERIODS. WITHIN ANY GIVEN VALID PERIOD OBSERVATIONS AND SHORT AND MEDIUM RANGE FORECASTS SHOULD BE CONSULTED. ALSO - THIS SET OF OUTLOOKS WILL BE SUPERSEDED BY THE ISSUANCE OF THE NEW SET NEXT MONTH ON THURSDAY DECEMBER 14 2000.

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